



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

TDD (804) 698-4021

www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

September 24, 2008

MEMORANDUM

TO: State Water Control Board Members

FROM: Ellen Gilinsky, Ph.D., Director, Water Division

SUBJECT: Adoption of Amendments to the Water Quality Standards Regulation (9 VAC 25-260) – Triennial Review

EXECUTIVE SUMMARY

Staff will ask the Board to adopt the proposed Triennial Review amendments to the Virginia Water Quality Standards regulation. Based upon public comment, staff has concluded that, in addition to the changes documented in the attachment, the following key actions are appropriate:

- retain the existing E. coli bacteria criteria of 126 CFU/100 ml for freshwater recreation;
- add to section 310, at the request of the City of Richmond and in recognition of their Long Term Control Plan for their CSO, a special standard “ii” for E. coli bacteria for the months of May through September in a portion of the tidal James River below the fall line based on a risk level of 1% [geometric mean criteria of 206 CFU/100 ml];
- reconvene the triennial review ad hoc advisory committee (TAC) to further consider: 1) updates to aquatic life criteria for ammonia, copper, cadmium, cyanide and lead in section 140; and, 2) the prohibition of any new or expanded mixing zones for persistent bioaccumulative toxic substances in section 20 (see **Attachment 1** for a listing of the committee members); and,
- form an ad-hoc advisory group to assist agency permitting staff in the development of guidance on application of the section 30 Antidegradation Policy to Tier I waters.

In addition, the proposed amendments to the regulation include five revisions first introduced for public comment at the public hearings since they were identified subsequent to the June 2007 Board meeting where staff received authorization to proceed to Notice of Public Comment with proposed amendments.

BACKGROUND

Water quality standards are the cornerstone for water quality programs, as these standards are used to set pollution limits in discharge permits and evaluate the health of waters statewide.

Water quality standards define the goals for healthy waters by designating their uses, setting water quality conditions that will protect those uses and establishing provisions to safeguard high quality waters. They protect water quality so rivers, lakes and other water bodies can be sources of water supplies; support recreational, agricultural, and industrial activities among others; promote the growth of fish and shellfish that are suitable for eating; and protect aquatic life.

The Clean Water Act and State Water Control Law require that every three years the Board conduct a review of the state surface water quality standards regulation for the purposes of revising and updating the standards to reflect changes in law, technology and information. The goal is to provide the citizens of the Commonwealth with a technical regulation that is protective of water quality in surface waters, reflects recent scientific information, reflects agency procedures and is reasonable and practical.

PURPOSE

Staff will ask the Board to adopt triennial amendments to the Water Quality Standards regulation.

At their June 27, 2007 quarterly meeting, the State Water Control Board authorized staff to proceed to public hearing with proposed triennial review amendments to the Water Quality Standards, including the following items:

- a narrative criterion to recognize that certain waters (Class VII Swamp Waters) are naturally low in dissolved oxygen and pH;
- updates to the toxics criteria to protect human health and aquatic life;
- updates to the bacteria criteria, including the presentation of two bacteria criteria options calculated using two different risk levels, both of which are acceptable to the Environmental Protection Agency (EPA); and,
- special standards to reflect site specific conditions.

In addition, staff introduced five issues for public comment that were identified subsequent to the June 2007 Board meeting. The Virginia Department of Health (VHD) submitted three requests that were not received in time to present to the Board at the June 27 meeting: 1) revised wording in section 160 for the fecal coliform criteria for shellfish waters to reflect changes the VDH Shellfish Sanitation Division is making in their testing method to conform with the National Shellfish Sanitation Program; 2) revised designation boundaries for 17 Public Water Supplies (PWS); and, 3) for security reasons, deletion of the latitude/longitude coordinates for 15 PWS intakes. In addition, staff included updates to the lake nutrient criteria in sections 50 and 187 that are considered reasonable but could not be proposed until the regulatory amendments for

lakes became effective in August 2007. Finally, several minor corrections are suggested in section 140, Table of Parameters, regarding the units and Chemical Abstract Service number for some parameters.

RESPONSE TO PUBLIC COMMENT

During the public comment period (March 31 – May 30, 2008), three public hearings were held in Roanoke, Richmond and Virginia Beach. Board members Shelton Miles, John Thompson, and Robert Wayland each presided over a hearing. In addition to the proposed amendments, the public was also provided with a copy of the Department of Planning and Budget's Economic Impact Statement for the proposal (see **Attachment 2**).

At the hearings, DEQ staff alerted the public of a new development that occurred after the Board had approved the options for public comments. New information from the EPA indicated that a change in the bacteria standard would allow higher bacteria limits in discharge permits for wastewater treatment plants. While DEQ had originally not taken a position on the options for the bacteria criteria, it never intended that higher discharge limits would result. DEQ indicated that this concern would be shared with the Board when it considers the proposed changes to the water quality standards.

Written comments on the triennial review changes were received from 34 organizations, localities and agencies, and 8 letters and approximately 600 emails from individuals. The issue that attracted the most comment was the bacteria options, with all of the 8 letters and 600 emails from individuals opposing the option of the higher criteria. Of the organizations, localities and agencies commenting on the bacteria criteria, four also opposed the higher criteria, and 20 supported the higher criteria. Opponents are concerned that the higher criteria would result in additional gastrointestinal illnesses among the public recreating in Virginia waters.

Attachment 3 is the Final Regulation Agency Background Document which includes a table of the changes made since the proposal stage, a summary and response to public comment, and a table listing all the changes to the regulation being proposed. **Attachment 4** is a copy of 9 VAC 25-260, Virginia Water Quality Standards showing the proposed wording changes (only sections of the regulation with changes at the proposed or final stage are presented).

While all of the changes made since the proposal stage are included in the table beginning on page 4 of Attachment 3, the key changes in response to public comment and other key issues are summarized below in the order of the sections in the regulation:

§ 9 VAC 25-260-20, General Criteria and Mixing Zones

Comment: The Chesapeake Bay Foundation opposed continuation of VPDES permitting policies authorized by existing standards for mixing zones and urged revision of the proposal to prohibit any new or expanded mixing zones for persistent bioaccumulative toxic substances.

Response: DEQ will recommend that the Board direct staff to reconvene the TAC to consider the prohibition of any new or expanded mixing zones for persistent bioaccumulative toxic substances.

§ 9 VAC 25-260-30 Antidegradation Policy

Comment: The Chesapeake Bay Foundation opposed continuation of the VPDES permitting policy of a holistic approach toward antidegradation and urged revision of the proposal to require the application of the antidegradation policy to Tier I waters for all pollutants using a pollutant-by-pollutant approach.

Response: DEQ will recommend the Board direct staff to form an ad-hoc advisory group to assist agency permitting staff in developing guidance on application of § 9 VAC 25-260-30, Antidegradation Policy, to Tier I waters.

§ 9 VAC 25-260-140, Criteria for Surface Waters

Comments:

1. The Virginia Association of Municipal Wastewater Agencies (VAMWA) and others requested that the proposed updates to aquatic life criteria for cadmium and lead be put on hold until the TAC used for the triennial review of the water quality standards regulation could be reconvened to:

- review recent literature that was unavailable when EPA updated the cadmium criterion to determine if these data should be used to recalculate the cadmium criterion; and,
- review whether the conversion factor recommended by EPA for use with their lead criteria may not be accurately applicable to the Virginia criteria, due to the differences in the underlying toxicity data that are the basis for the differences between the EPA and Virginia criteria for lead.

Note: TAC members representing the groups that provided comments about lead and cadmium also recommended during the TAC meetings that recent literature now available since EPA's last revision of the aquatic life criterion for cyanide should also be evaluated to determine if the cyanide criterion should be updated to incorporate the new information.

2. Although the aquatic life criteria for ammonia and copper were not proposed for amendment, the USFWS requested that recent new data be evaluated by a reconvened TAC to determine if aquatic life criteria for these two parameters should be recalculated using the new data to protect endangered species of mussels.

Response: Completing review of the new information for these five criteria during the initial TAC process would have delayed the triennial review rulemaking for all of the proposed amendments, including some time sensitive issues related to the TDML program. DEQ will recommend that the Board direct staff to reconvene the TAC to consider updates to aquatic life criteria for ammonia, copper, cadmium, cyanide and lead.

§ 9 VAC 25-260-170, Bacteria, Recreational Waters

Comment: A substantial number of public comments (over 600 comments) were submitted in opposition to relaxation of the E. coli criteria for freshwater recreation use. Comments supporting the higher E. coli criteria were received from VAMWA, thirteen of its members, and several other entities.

The key points made in support of retaining the lower, existing bacteria criteria include:

- Significant public comment was submitted that supports cleaner and safer waters within the Commonwealth and believes that raising the criteria is going in the wrong direction.
- The Virginia Department of Health decided to remain neutral on the issue, neither supporting nor opposing the increase in the illness rate.
- Citizens commented that insufficient scientific data are available to justify raising the existing criteria.

The key points made in support of the higher bacteria criteria include:

- The risk level for potential gastrointestinal illness under the existing saltwater criteria is greater than the risk using either of the freshwater criteria options. In saltwater, the potential gastrointestinal illness rate is 19 per 1000 swimmers versus 10 per 1000 swimmers in freshwater at the higher bacteria criteria, and 8 per 1000 swimmers at the lower bacteria criteria. Most of the popular beaches in Virginia are located in saltwater.
- The higher bacteria criteria of 206 CFUs per 100 milliliters is not considered a significant increase from the existing criteria of 126 CFUs per 100 milliliters. Either criteria are considered protective by the EPA for primary contact recreation [swimming]. If a state proposed setting a bacteria criteria higher than 206 CFUs per 100 milliliters, then EPA would require submission of additional justification and data before it would consider approving a criteria higher than the acceptable range.
- If the higher bacteria criteria are selected, the Board could consider adopting a special condition that requires effluent limits for wastewater treatment plants to meet the existing, lower bacteria criteria of 126. This would ensure there was no backsliding on the current level of wastewater treatment provided.
- Initial estimates indicate that under the higher bacteria criteria 10 to 15% of state waters would no longer be considered impaired as they would be under the lower

bacteria criteria. *[Therefore, approximately 150 to 225 TMDLs would not be needed over the next decade, with a resulting savings of about \$4-8 million in TMDL and implementation plan development costs. In addition, based upon extrapolated cost estimates included in a limited number of TMDL Implementation Plans, another \$350 to \$500 million may be saved since implementation of best management practices for non-point sources to restore these waters would no longer be needed.]* Also, comments noted the massive undertaking needed to meet the bacteria criteria statewide and included an estimate of a statewide cost of \$36 billion. Thus, every effort should be taken to focus on the most critical clean-up needs.

Response: DEQ will recommend that the Board retain the current bacteria criteria values and only approve revisions to the structure of the bacteria criteria to more closely reflect EPA recommendations, such as using the geometric mean criteria as the environmentally relevant endpoint.

EPA has indicated that risk levels in the 0.8% to 1.0% range are all protective of primary contact recreation in freshwater. An 0.8% risk level results in the current criteria of E. coli bacteria not to exceed a monthly geometric mean of 126 CFU/100 ml, while the 1.0% risk level results in a higher criteria of E. coli bacteria not to exceed a monthly geometric mean of 206 CFU/100 ml. While EPA will approve a state's water quality standards for bacteria in freshwater with a risk level within the range of 0.8% to 1.0%, the choice of the risk level is a policy decision for the state.

EPA also acknowledges the existing criteria are more than 20 years old and since then scientists have learned much about molecular biology, virology, and analytical chemistry. EPA has publicly announced it is conducting a thorough review of the national bacteria criteria, with plans to complete the review and publish new or revised criteria by 2012.

Staff agrees with comments that the TMDLs developed to meet the existing bacteria criteria call for very significant reductions in bacteria inputs from non-point sources; many believe these reductions are not attainable. Comments received from the VA Department of Conservation and Recreation support that concern. They indicate that with current technology and available BMPs for agricultural lands, bacteria can be reduced, at best, 80 to 90%, while the TMDLs generally call for reductions in the 95 to 100% range. They note the only options available to meet the higher reductions would be to reduce or eliminate livestock from these watersheds or utilize storm water retention ponds to capture and treat all the runoff. The extremely high cost estimates included in some comments reflect statewide extrapolation of the costs to install these other options. In response to these concerns, staff believes the use of the geometric mean criteria as the endpoint in TMDLs should call for more reasonable bacteria reductions.

The projected, additional costs noted by those supporting the higher criteria can be significantly reduced, or eliminated, by re-scheduling completion dates for the TMDLs needed for the waters

that remain impaired under the lower criteria. For example, development of those TMDLs can be scheduled after EPA's planned publication of new bacteria criteria in 2012 to give the DEQ and the Board time to consider any adjustment to the bacteria criteria based on new national recommendations supported by the most recent scientific data. In the interim, TMDL work can focus on those waters for which there is no question the bacteria impairments need to be addressed.

Staff acknowledges the strong positions taken by those submitting comments favoring one of the bacteria options over the other. Given that the basis for the acceptable range of the bacteria criteria is over twenty years old and that EPA is working towards publication of new or revised criteria based upon present day knowledge of public health impacts from water borne disease, staff believes a prudent course is not to recommend changing the statewide criteria at this time. In the interim, staff will schedule development of TMDLs for those impaired waters most in need and will continue to encourage implementation work that will improve water quality.

As an additional matter, Section 62.1-44.15.(3a) of the Code of Virginia requires DEQ to notify the General Assembly committees when the agency is proposing regulations more stringent than federal requirements. EPA allows states to select bacteria criteria within a range of values that is protective of public health and some citizens view retaining the existing criteria at the lower end of the range to be more stringent than federal requirements. Therefore, even though there may be some debate whether adopting criteria within the acceptable range is more stringent than federal requirements, the agency notified the appropriate General Assembly committees in order to ensure the intent of the Code of Virginia is met (see **Attachment 5**).

§ 9 VAC 25-260-310

Comment: The City of Richmond submitted comments that recommend the Board adopt the higher bacteria criteria as a special standard for a segment of the James River below the City if the Board decides not to adopt the higher criteria for all Virginia freshwaters. The City indicated that in order to continue implementing its Long Term Control Plan for their Combined Sewer System it needs a determination on the bacteria criteria as soon as possible. To date, a total of \$256 million in local, state and federal funds has been invested in implementing the Plan, and the City of Richmond has committed to spend between \$352 – 422 million (2006 dollars) for Phase III, which will complete implementation of the Plan. The City needs to know that spending the additional funds will result in compliance with water quality standards once the projects included in the Plan are completed.

The City's comments also referred to the Special Order with the Board, effective March 17, 2005, regarding implementation of a plan to control combined sewer overflow discharges to the James River. The City referred to the following item under Section D of the Order:

- “2. The Board accepts the City's January 2002 LTCP and approves the CSO Control Plan E, as described in the LTCP subject to the Board completing its ongoing water quality standards coordination

process pursuant to Section III of the CSO Policy and the Board's determination that the recommended plan makes the water quality standards compliance demonstration called for in Section II.C.4.b.i and ii of the CSO Policy."

The City indicated that when the State Water Control Board approved the Order at its August 31, 2004 meeting, the Board chair "directed staff to complete the water quality standards coordination process with this triennial review of the standards and that request is documented in the City's CSO Special Order."

The City also presented information to show that under full implementation of CSO Control Plan E, water quality standards will only be attained if significant reductions are also achieved in other bacteria sources in the Richmond region; the City states such reductions are unattainable.

Response: Staff plans to recommend adoption of a special bacteria standard for the James River below Richmond.

DEQ has conducted the water quality standards coordination process in accordance with EPA's CSO Policy both before and after the Special Order between the Board and the City was signed. For example, DEQ worked with the City during development of the Long Term Control Plan to ensure the public was involved and aware of the process. In addition, during the TAC meetings under this triennial review process, the need for a special standard for the James River due to the Richmond CSO program was discussed. The EPA CSO Policy recognizes that a state may adopt site-specific criteria for a particular pollutant if the State determines that the site-specific criteria fully protect the designated uses. Based upon the modeling of the James River done by the City, once the Long Term Control Plan is completed, the river cannot achieve the existing E. coli criteria of 126 CFU/100 ml, but it can achieve the higher criteria of 206 CFU/100 ml, both of which are acceptable to EPA to protect primary contact recreation. This analysis presumes bacteria inputs from other sources remain at current levels.

The City has indicated they need to know before additional expenditures of significant funds are made that standards will be achieved once the Long Term Control Plan is completed, independent of whether reductions from other bacteria sources are achieved or not. Staff recognizes that adoption of special criteria at this time provides the City the greatest assurance their enormous investments will ultimately result in water quality standards compliance. Since a delay in implementation of the Long Term Control Plan is an outcome no one desires, adoption of the special standard now also allows the City to maintain its accelerated pace of implementation.

The two other CSO communities in the Commonwealth, the Cities of Lynchburg and Alexandria, did not submit comments requesting a special bacteria standard. However, staff recognizes, especially due to the high costs involved with implementing the Long Term Control Plans, all three of the CSO communities need to be treated consistently with respect to water quality standards compliance issues. As the Long Term Control Plans and the TMDLs are

implemented in these other communities, monitoring progress towards water quality standards compliance will be used to help determine whether any future actions regarding water quality standards may be needed.

ATTORNEY GENERAL CERTIFICATION

Since changes were made to the proposed text in response to public comment, these amendments are being forwarded to the Office of the Attorney General for agency statutory authority. The amendments will be proposed "contingent upon Attorney General Office statutory authority" if not received by the October Board meeting.

STAFF RECOMMENDATIONS

Staff recommends that the Board:

1. Adopt the amendments to the Water Quality Standards at 9 VAC 25-260 as presented in Attachment 4;
2. Direct staff to reevaluate the existing bacteria criteria to determine if revisions are appropriate once EPA publishes new or revised bacteria criteria, currently anticipated by 2012.
3. Direct staff to reconvene the triennial review ad hoc advisory committee to consider updates to aquatic life criteria for ammonia, copper, cadmium, cyanide and lead in § 9 VAC 25-260-140, Criteria for Surface Waters, and consider the need for a prohibition of any new or expanded mixing zones for persistent bioaccumulative toxic substances in § 9 VAC 25-260-20, General Criteria and Mixing Zones; and,
4. Direct staff to form an ad hoc advisory group to assist agency permitting staff in the development of guidance on application of § 9 VAC 25-260-30 Antidegradation Policy to Tier I waters.

PRESENTER CONTACT INFORMATION:

Presenter Name: Alan E. Pollock, Manager

Presenter Office: Water Quality Programs

Telephone: 804-698-4002

E-mail: aepollock@deq.virginia.gov

ATTACHMENTS

Attachment 1 is a listing of the Ad Hoc Advisory Committee Members, May 2007.

Attachment 2 is the Department of Planning and Budget's Economic Impact Statement for the proposal.

Attachment 3 is the Final Regulation Agency Background Document, September, 2008, which includes a table of the changes made since the proposal stage, a summary and response to public comment, and a table listing all the changes to the regulation being proposed.

Attachment 4 is 9 VAC 25-260 Virginia Water Quality Standards, Triennial Review Proposed Amendments (only sections of the regulation with changes at the proposed or final stage are included.), September, 2008.

Attachment 5 is a notification memo to the General Assembly committee chairs of Proposed State Water Control Board Regulations Concerning Water Quality Standards for Bacteria to Protect Recreational Uses of State Waters